County of San Diego
Revised: August 30, 2002
Reviewed: Spring 2003

I.T. ENGINEER **Class No. 002420**
SENIOR I.T. ENGINEER **Class No. 002421**

DEFINITION:

To perform highly complex Information Technology projects involving the design, development, analysis, implementation, and maintenance of software and hardware for multi-level departmental information technology systems; and to perform related work as required.

DISTINGUISHING CHARACTERISTICS:

Positions in these classifications are found only in departments that report to elected officials, and the Department of Child Support Services. Information Technology (I.T.) Engineers serve as administrators, analysts, and designers, and may direct the work of subordinate information technology classes. The I.T. Engineer differs from the next higher class of Senior I.T. Engineer in that the latter may act as the lead and is responsible for the highly complex design, development, analysis, implementation, and maintenance of software and hardware for multi-level departmental systems.

I.T. Engineer: This is the journey-level in this class series. Under general supervision, this class is responsible for the design, development, analysis, implementation, and maintenance of software and multi-level systems. As incumbents gain experience they are given work of greater difficulty with less supervision.

Senior I.T. Engineer: This is the lead-level in this class series. Under direction, this class provides technical guidance and leadership to others in the design, development, analysis, implementation, and maintenance of highly complex software programs and multi-level platform systems.

EXAMPLES OF DUTIES:

I.T. Engineer:

Application Development and Support: Evaluates customer needs; develops user requirements; analyzes cost benefits and recommends solutions; designs, develops, analyzes, implements, and maintains departmental software products/network systems, imaging processing, and their interface with outside state or federal systems; provides technical support; identifies and resolves user problems; develops and assists users in the development of applications using word processing, spreadsheet, database, graphics, programming languages, and utility software; designs, codes, tests, and implements applications; develops enhancements and modifications to programs; designs and develops web-based applications; prepares technical writings for management; monitors industry for new developments in computer technology to determine upgrade possibilities and makes recommendations to senior staff; develops management information system reports using a variety of software packages or computer languages.

Systems Implementation and Support: Maintains software and hardware inventories; provides operational support by performing system start-up, shutdowns, back-up, and recovery of systems files and data; installs equipment; determines security access and system integrity; maintains file/tape inventories; maintains problem logs; monitors and reports system usage; performs feasibility studies to determine basic software and hardware requirements; may represent the department in Information Technology activities including attending seminars, trade shows, and user group meetings; designs, develops, tests, and deploys systems; designs, develops, analyzes, implements, and maintains departmental file/print servers, specialized servers (WEB, SQL, Proxy, etc.), and electronic mail services;

provides technical consultation to other I.T. divisions and management; specifies, installs, and maintains system hardware platforms; develops and maintains system disaster recovery plans and LAN based network services (DNS, WIN's, etc.); implements and maintains NOS and LAN/WAN security; develops, implements, and maintains network monitoring infrastructure; installs, maintains, and administers department's LAN/WAN hardware and network infrastructure; meets with customer representatives to coordinate systems requirements and installations; conducts cost-benefit studies to determine effectiveness of procuring computer equipment; coordinates and maintains technical relationships with hardware and software vendors; trains administrators as needed per project; provides training to users or identifies training resources on the proper use of hardware and software; coordinates service requests; tests, evaluates, and recommends selections of system components; and develops management information system reports using a variety of software packages or computer languages.

Database Administration: Designs and implements complex databases, such as Oracle; develops and enforces database standards; ensures database integrity; maintains database to optimize performance and security; performs upgrades, backups, and recovery.

Senior I.T. Engineer: All of the duties listed above including: reviews and recommends approval of contract proposals for software and hardware services; assists in the preparation of the Information Technology budget; acts as the project manager for highly complex software development or systems design; leads a team in strategic planning; ensures compatibility with existing software and hardware; conducts cost-benefit studies on the procurement of new computer equipment; provides input and recommendations for highly complex contract proposals for multi-level systems services; and may supervise professional information technology staff.

MINIMUM QUALIFICATIONS:

Knowledge Level: T = Thorough; G = General; -- = Not Applicable

Classification Level: I = I.T. Engineer
II = Senior I.T. Engineer

Knowledge of:

I	II	
T	T	Principles of hardware and software installation, testing, and operation.
G	T	Capability and capacity of various software products/communication utilities.
G	T	Principles of data communications and telecommunications.
G	T	Micro/mini/mainframe computer operating systems.
G	T	Relational database concepts, database design, and maintenance.
G	T	Standard business practices and basic accounting procedures.
G	T	Programming tools, software, and utilities.
G	T	Systems concepts and fundamentals.
G	T	Teleprocessing and telecommunications architecture.
G	G	Data file management.
G	T	Project management.
--	G	Contractual concepts and development.
--	G	Feasibility study requirements.
--	G	Purchasing and Contracting concepts/requirements.

Skills and Abilities to:

- Communicate effectively, both orally and in written form, with a wide variety of individuals and groups.
- Design, analyze, and implement multi-level platform systems.
- Establish and maintain effective working relationships with end users, vendors, and managers.

- Identify and resolve software/hardware problems.
- Write clear documents that accurately describe application, hardware, and system configuration interfaces.
- Define user needs and recommend alternatives.
- Use system utilities to resolve hardware/software problems.
- Learn and apply advances in technology to existing system environments

Senior I.T. Engineer: (In addition to the above)

- Design system configurations that are cost effective and meet the needs of the user.
- Lead a team throughout a highly complex software/system development project.
- Supervise and train both technical and non-technical subordinate staff.

EDUCATION/EXPERIENCE:

Education, training, and/or experience, which demonstrate possession of the knowledge and skills listed above. Examples of such education/experience are:

I.T. Engineer:

1. A bachelor's degree from an accredited college or university in computer science, information systems, or related field, AND two (2) years of paid experience designing, developing, analyzing, maintaining, and implementing software programs and multi-level platform systems, or LAN/WAN environments; OR,

2. Four (4) years of professional journey-level experience designing, developing, analyzing, maintaining, and implementing complex software (ORACLE) programs and multi-level platform systems, one (1) year of which must have been at a lead or supervisory level.

Senior I.T. Engineer:

1. Three (3) years of experience as an I.T. Engineer in the County of San Diego; OR,

2. Five (5) years of experience designing, developing, analyzing, maintaining and implementing highly complex software programs (such as ORACLE) and multi-level platform systems, two (2) years of which must have included supervisory and/or project management experience.

Note: Certification as an OCP (Oracle Certified Professional), Microsoft Windows NT MCP (Microsoft Certified Professional) or MCSE (Microsoft Certified Systems Engineer) is highly desirable and may be substituted for up to one year of the required education. Additional years of directly related verifiable experience may be substituted for the required education on a year-for-year basis. Experience limited to selling, using, or operating a microcomputer or word processor will not be considered qualifying.

SPECIAL NOTES, LICENSES, OR REQUIREMENTS:

Working Conditions:

Occasional evening/weekend or on call work may be required.

License:

A valid California Class C driver's license is required at time of appointment or the ability to arrange transportation for field travel. Employees in this class may be required to use their own personal vehicle.

Background Investigation:

Must have a reputation for honesty and trustworthiness with no felony convictions. Convictions may be disqualifying depending on number, severity, and recency. Prior to appointment, candidates offered employment in Sheriff's Department facilities or District Attorney's office are subject to a background check that will include a polygraph examination.

Probationary Period:

Incumbents appointed to permanent positions in this class shall serve a probationary period of 12 months (Civil Service Rule 4.2.5).